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# KNIGHTS OF THE WAVE

THE STORY OF RESCUE AT SEA

BY JOHN D. WHITING



**T**HERE was not a day throughout the entire year when the Coast Guard was not engaged in some kind of definite assistance to the public." So reads the simple statement of the United States Annual Report. But how much it means! Saving life and property on the sea, extending aid to the distressed, averting disaster by signals of warning, protecting game and fisheries, enforcing the law and patrolling the ocean wastes—all these and many other activities making up the vital service of the Coast Guard.

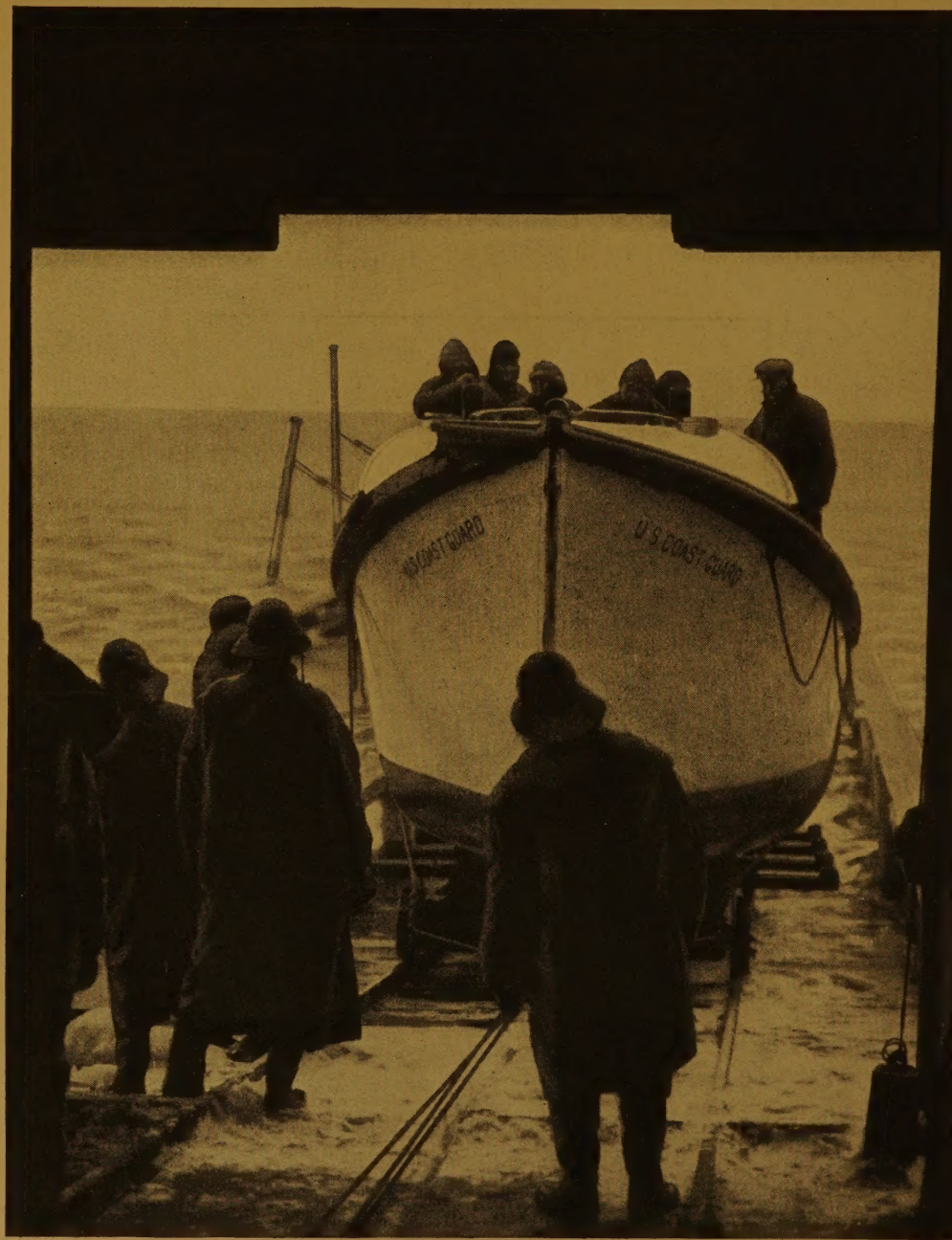


Photo by Johnson Bros.

### BACK FROM THE WRECK

This picture shows the Sandy Hook Coast Guard-boat returning after rescuing five of the crew of the schooner *Com-mack* that ran aground a quarter of a mile off shore during a storm on January 29, 1925. Braving the danger of having their small craft smashed against the schooner's side, the Coast Guard crew again and again attempted to rescue the unfortunate sailors. Five of the crew made the perilous jump from the wrecked schooner to the rescuing boat. The photograph above shows the splintered bow of the lifeboat, which was smashed when a huge wave dashed it against the schooner's side

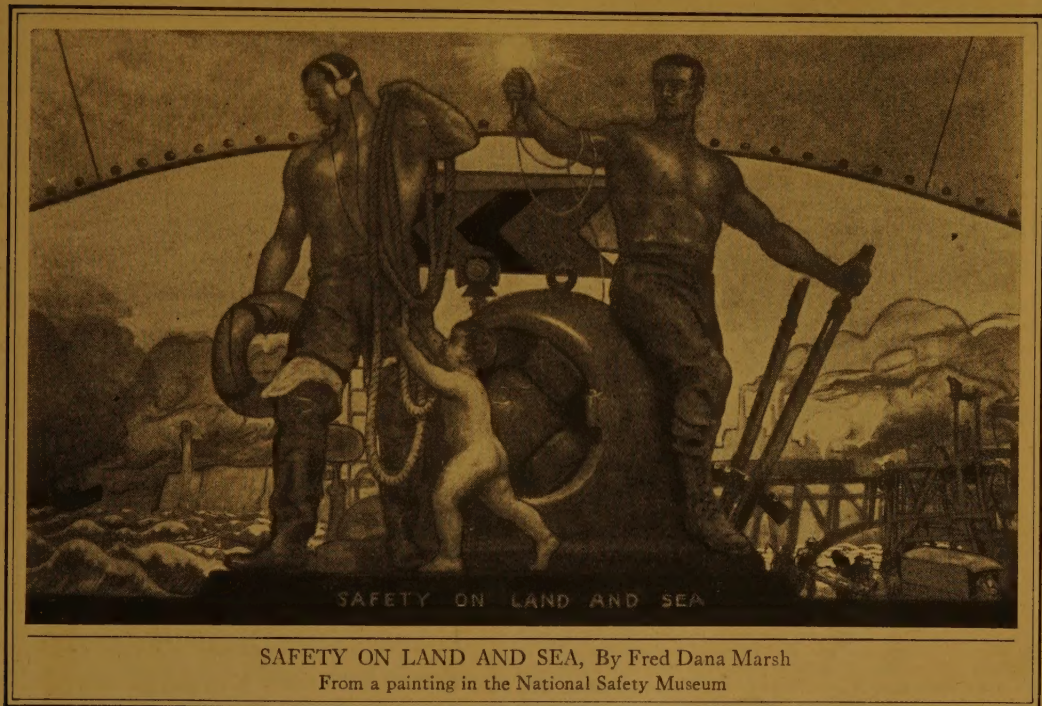


# THE MENTOR

Vol. 13 No. 6 ❖

JULY, 1925

❖ Serial No. 269



## NIGHTS OF THE WAVE ❖ ❖ ❖

The Story of Rescue at Sea—Duties, Responsibilities and Perilous Service of the Coast Guard of To-day

BY JOHN D. WHITING

Few people realize the extent of the Ocean Life-Saving Service of to-day. The shores of all civilized nations are well protected, for the many thousand miles of beach, rock or cliff are guarded by brave little life-saving posts.

Great Britain has two hundred and thirty such stations, each with its lifeboat manned by volunteers for the most perilous service on earth. It costs fifty thousand dollars to build a modern motor lifeboat, and every year the British people spend over a million dollars to maintain the watch upon their shores. And the money, mark you, comes from voluntary gifts; the Royal National Lifeboat Institution receives no government assistance. The records of the institution make as thrilling reading as the greatest works of fiction. In ninety years the British service has saved more than fifty thousand lives at sea, and is still the model for the life-saving workers of the world. All nations get the same treatment, peace or war, friend or foe. British lifeboatmen were risking their lives to save shipwrecked Ger-



COXSWAIN JOHN HOWELLS OF FISHGUARD,  
ENGLAND (Born 1853—Died 1921)

A distinguished British Coast Guardsman—awarded gold medal in rescuing the Dutch three-masted schooner *Hermina* December 2, 1920. The splendid seamanship of John Howells was responsible for rescuing the men of the *Hermina* from almost certain death and saving his own lifeboat crew from imminent destruction

mans while bitter hatred still poisoned the hearts of the landsmen.

France has one hundred and ten lifeboats, also manned by volunteers, who have saved twenty thousand lives since 1865, giving aid to fifteen thousand vessels in distress.

Holland has forty-two stations on her short but perilous coast, a station almost every five miles. These are maintained entirely by voluntary gifts and they have cheated Davy Jones of fifty thousand victims since their inception in 1824. The Germans were a little late in organizing, but since 1865 they have saved nearly four thousand voyagers from deep-sea graves, and they now operate one hundred and twenty-three lifeboats. Little Denmark, always to the fore in humane progress, operates no less than sixty-nine stations, sending out the lifeboats

which, since 1852, have brought ashore some nine thousand people in distress.

This transformation, it is true, could not have occurred without the invention of the self-righting lifeboat, the wreck gun, etc. But here the hearts of men have kept pace with their brains; indeed, it is the popular demand which brings forth the invention. Where the people's conscience and will to help is roused there is nothing that they can't accomplish—a lesson we have yet to learn in the great fight to outlaw war.

The United States has tremendous shores to guard—over ten thousand miles of coast line. Much of it is a wild, desolate country with few seaports and a scanty population. And yet there is no other coast in the world that offers more hope to the sailor in distress. No matter how savagely the hurricane may blow or how thick the fog, no matter how terrible the power of the seas that break upon the sand bar or the reef, Uncle Sam will get him and put him safe ashore if it is a human possibility to do it.

In the year 1923 seven hundred and thirteen American vessels met with disaster on or near these coasts.\* Some foundered in gales; some ran ashore; most of them met with collisions. Twenty-six thousand people were on board these ships, but the lives of *only eighty-six* were lost. That

\*This does not include river accidents or wrecks of foreign ships.

## KNIGHTS OF THE WAVE

is the meaning, the real human meaning, of the United States Coast Guard.

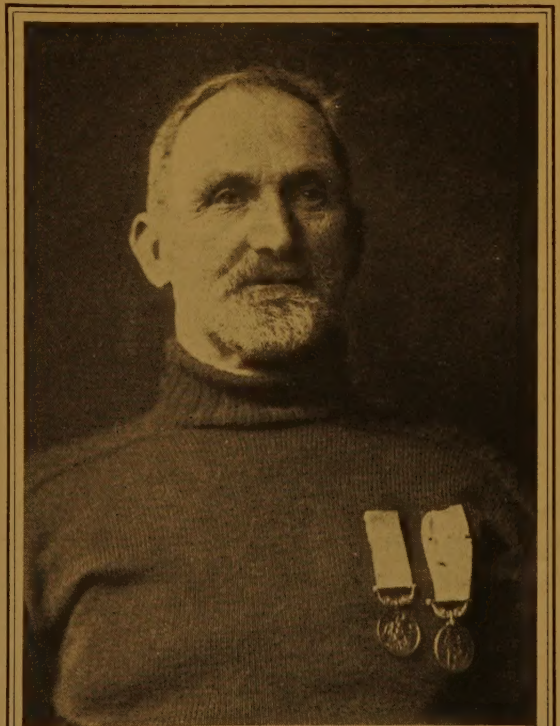
Just for instance, here is something that happened in December, 1912. A sea-going tug, the *Margaret*, struck a submerged wreck off the coast of New Jersey. There was a gale blowing at the time, and the *Margaret* was so badly injured that her captain had to run her ashore. She grounded in the midst of the breakers between Avalon and Tathams.

The crew of the Tathams Life-Saving Station launched their motor surfboat from the beach. But so great was the power of the surf that it took eight oars in addition to the motor before the boat could get beyond the breakers. The lifesavers found the tug with only her pilot house above water. Her crew of ten were desperate with fear.

The gale had now increased into hurricane velocity and the waves were towering far up against the sky. Swept beyond the wreck by a series of mountainous seas, the lifeboat crew spent half an hour trying to work back against the gale. At last, flung high by a furious wave, the boat was capsized and the crew thrown out and scattered. The men had life belts on and, marvelous to say, all of them succeeded in getting to shoal water where they were seen and rescued by the crew of the Avalon station.

And all this time the tug's crew were agonized by fear—that most terrible of all human ills. Imagine their feelings when they saw another lifeboat launched! This boat was from the Avalon station. It had no motor and bore a mixed crew because the Tathams men *wouldn't be left out*. Almost dead from exhaustion and cold when washed ashore, they had been revived and were ready now to fight again, and once more face death.

The wind had moderated and, after a long struggle, the wreck was reached and a line was thrown aboard her and made fast. But, as the line tautened, the boat swung broadside to the foaming seas that swept past the *Margaret's* bow. Five oars were swept



COXSWAIN THOMAS LANGLANDS OF THE  
UPGANG LIFEBOAT, YORKSHIRE, ENGLAND  
(Born 1853—Died 1923)

Langlands received a silver medal for rescue service to fishing boats in 1906 and the gold medal for brave service in the rescue of the *Rohilla* in October, 1914. This unfortunate vessel, carrying 229 souls, was drifting ashore near Whitby in a storm of terrific violence. The *Rohilla* was pounded by mountainous waves and surrounded by a mass of rocks. Langlands managed to get in with his lifeboat crew and rescued a large number of the shipwrecked men and women, all the time displaying great courage and coolness.



COXSWAIN FLEMING OF GORLESTON (left) AND COXSWAIN SWAN OF LOWESTOFT (right)  
Both these sturdy British Coast Guardsmen are gold medalists. William George Fleming, born 1865, is still in service.  
John Thompson Swan, born 1851, was retired in 1924 with a pension and certificate of service

away, while the boat filled and seemed about to capsize. Headed around by superhuman efforts, the boat was soon full of the *Margaret's* men, who tumbled eagerly aboard. Just in time; a great sea crashed her against the wreck, smashing in three of her planks. Push off! push off!—and pulled by three oars the surfboat bore her eighteen men to land! Superb skill and courage had beaten the fury of the worst sea known on that coast in thirty years.

And we, in our sunny breakfast-rooms, read a few short paragraphs about it in the paper—that was all.

But the guardsmen feel repaid and often reënlist, as long as they have strength to pull an oar.

Of course the surfmen do not always win, and failure is generally at the price of their lives. To illustrate: The Italian bark *Nuova Ottavia* was wrecked on the North Carolina coast in 1876. There was an ugly sea running and the Italians were almost crazed with terror. When the surfboat at last got alongside they all jumped for her at once and she promptly capsized. Not a man of either crew was saved from this disaster, which could be seen from the shore.

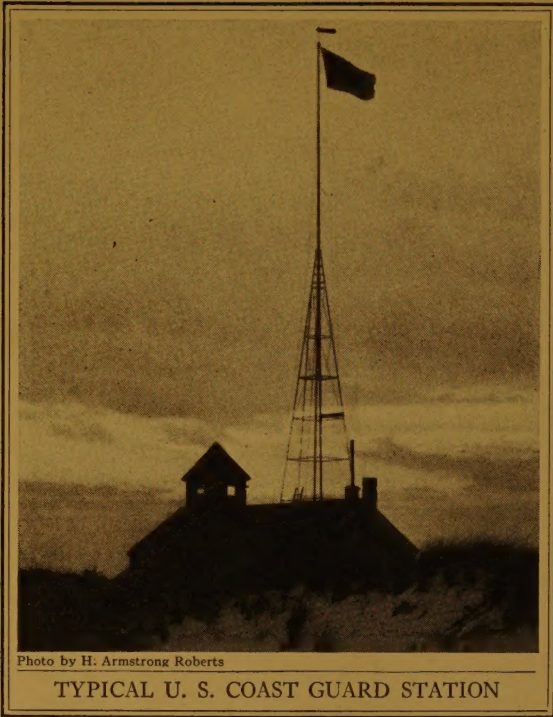
Here is a trying work, one that requires cool heads, trained hands and brave hearts. How is it done? What earthly power enables a handful of men,



THE LIFEBOAT

From a painting by J. D. Whiting, author of this article

## KNIGHTS OF THE WAVE



scattered along ten thousand miles of coast, to reach nearly every wreck before it is too late, and cheat the ocean of her victims? To answer that, one has to look back across the years and see how organized life-saving came about; how the patient efforts of inventive brains have built up, step by step, the organization and the wonderful equipment with which men play the finest game on earth.

The good work was begun in France, England and America about the time of the American Revolution. The sea-loving British were pioneers in the development of the lifeboat, wrecking gun, etc. But the United States, with her

far-flung surf line, has shown great skill and enterprise, and here too one can trace the slow awakening of the *will to save*. So we may "see America first" and then look to Europe for the story of the lifeboat.

The last guns of the Revolution had hardly died away when Massachusetts, always a leader, formed a humane society and undertook to shelter and care for the many travelers wrecked on her dangerous coast. And our young government was not too raw to feel that, having thrown a certain un-English sovereign across the ocean, it had that ocean on its hands.

### THE REVENUE SERVICE

So, in 1790, the Revenue Cutter Service was established to guard our coasts against pirates and smugglers.

This service, which is now part of the Coast Guard, is a well-armed naval force, and has taken a distinguished part in all of America's wars. In war time it is under control of the Navy Department. When first organized the Revenue Service was purely a floating police force, but in 1837 Congress authorized the President to use the revenue fleet to search for wrecks, aid in saving life at sea and destroy derelicts that menaced navigation. By this act the United States, first of all governments, assumed as a constant obligation the rescue of seafarers of all nations when in peril or distress. It was an example that went far to light the torch of a better civilization. Since then the duties of the cutter fleet have multiplied amazingly. We may say of the revenue "gob," as Kipling did of the British "jolly": "There isn't a job on the face of the earth that the beggar don't know nor do."

## KNIGHTS OF THE WAVE

But most of these jobs are humanitarian; for example, the ice patrol. Every spring, when we are rejoicing in the warmth and fragrance of May, ships at sea are menaced by the great icebergs that drift down across the steamer lanes, carried by the cold Labrador current and shrouded by the treacherous fog. And every spring the Coast Guard keeps a cutter cruising among these floating islands of ice, sending out wireless reports to other ships of the exact location of the bergs.

A revenue cutter looks pretty good to men in danger or distress. On the cold, desolate shores of Alaska, in particular, these ships are the only link with a far-off civilization. Where sickness and famine ride the bitter wind, the hope of a revenue cutter, with its doctor and medical supplies, is often the only hope of life.

### THE LIFE-SAVING SERVICE

It was not until 1848 that Congress seemed to realize the crying need for life-saving stations on our shores. The coasts of New Jersey and of Long Island, being near the New York ocean traffic, saw most of the disasters. And here the government established a long chain of stations—merely rough shelters for lifeboats. The boats were to be manned by local volunteers as is done on European coasts.

But the winter storms came with their toll of horrors and the new surf-boats didn't arrive. Not enough fishermen could reach the wrecks. In 1854, three hundred lives were lost off the Jersey coast alone and public opinion was thoroughly aroused. The volunteer system obviously wouldn't work



A CREW OF UNCLE SAM'S COAST GUARDSMEN AT DRILL

## KNIGHTS OF THE WAVE

where seafaring men were so few in number and miles of sand dunes so many.

Congress fiddled with the matter until 1871. Then a man appeared who knew what was wanted and got it. This was Sumner T. Kimball, then chief of the Revenue Service. Finding the shore stations in a pitiable state, he persuaded Congress to vote twenty thousand dollars to reëquip them and to enroll permanent crews for these posts; crews that would sleep right beside their boats as the city fireman sleeps beside his engine. He also extended the chain of stations to cover Cape Cod and, later, the coasts of New Hampshire and Maine. It was only after some terrible disasters on the Carolina coast that Congress decided to extend the service down the sandy shores of Dixie.

The first year of Mr. Kimball's régime was marked by a total shut-out for his grim opponent; not a life was lost on the coasts then guarded. The American life-saving service had found itself at last.

In 1878 Congress passed a measure making the Life-Saving Service an independent department under a general superintendent. Sumner Kimball held that post for more than thirty-six years, and in that time only one per cent of the people wrecked on our coasts perished. In 1915 the Revenue Service and Life-Saving Service were reunited, called the Coast Guard, and placed under the Treasury Department. It now operates two hundred and



Photo from U. S. Coast Guard, Wash., D. C.

### THE MORNING AFTER THE STORM

Steamer stranded on Atlantic coast. This picture shows the breeches buoy apparatus as employed in the rescue work

thirty-seven active stations and seventy-five commissioned cutters, and has a force of nearly six thousand officers and men.

Each station has a keeper and about eight surfmen who keep watch two at a time and patrol the coast at night and during fog. While one man watches from the station tower his comrade goes on patrol, his beat extending from one to four miles up the coast. He is provided with red-flaring signals with which to warn ships of danger and with a pocket telephone set to

keep in touch with his station. Dressed in oilskins, his shining sou'wester strapped under his chin, he looks like some armored knight of a new crusade, the watchful outpost of mankind, armed not to maim and kill but to help and save.

"But," you say, "these patrols can't cover all the coast! There must be unguarded stretches where ships could go ashore unseen?"

Oh, but you forget the fellow in the tower. At his elbow is the telephone, connected with the general system, and usually with the special system of the Coast Guard, nearly three thousand miles in length. And now there is the radio.

Suppose, on a "dirty" night, the telephone rings in Station No. X. The message is from a seaport fifteen miles away.

"A schooner ashore?" says the quiet, tanned young fellow in the tower. "On Lufkin's Reef, you say, close to Cedar Cliffs? I haven't seen their signals—but we'll take care of them."

He might be speaking of a taxi out of gas, for all the flurry he shows.

He wakes the keeper, who is dressed in no time and looking grimly out to sea. A nice problem challenges his judgment: to man the motor lifeboat and drive for fifteen miles against the gale or to put the surfboat on her launching carriage and use a horse team or a tractor on the beach, to get her up to Cedar Cliffs. It is not unusual to wire for a "special" and rush the boat up by train. Whatever will get her there soonest is done, and some thrilling runs have been made which rival the records of our crack fire companies in getting engines to a fire.

And the wrecks are most unevenly distributed. Very few occur on the far southern coasts or on those of the Pacific, while the North Atlantic shores and those of the Great Lakes are thickly dotted with wrecks—and life stations. In most cases the patrols meet and their vision overlaps almost every-



Photo by H. Armstrong Roberts

A COAST GUARDSMAN SEARCHING THE WATERS

where—meaning added security.

The Great Lakes are closed by ice in the winter months, but late fall and early spring strew these unfriendly shores with some of our most terrible disasters. With few good harbors the inland seas have very sudden gales and a bitter cold unknown to salt-water sailors. Our two thousand five hundred miles of lake coast has a chain of sixty-two Coast Guard stations.

When we admire the complete equipment of a modern life-saving station it is interesting to look back and recall the struggle through the many years that evolved it.

## THE LIFE-BOAT

A Frenchman named M. Bernieres devised the world's first lifeboat in 1765. It was built with air boxes at bow and stern, and proved its ability to keep afloat when filled with water to the gunwales.

Twenty years later Lionel Lukin, an English coachbuilder, invented his famous lifeboat. This was modeled on the Norway yawl, which is a descendant of the fine old viking boats and has their seaworthy build. To this type Lukin added air-tight boxes, making her still more buoyant by a belt of cork along the gunwales.

But the British Government showed indifference toward Lukin's patent. It was the wreck of the *Adventure*, in 1789, that shocked the British into action. Not that it was any worse than many other wrecks that were occurring all the time, but it took place so close to the shore that crowds of people could look on. They could see the agonies of the exhausted sailors as, one by one, they dropped from the frozen rigging into the thundering sea; they could even hear the last cries of despair. A first-class lifeboat could have reached the *Adventure* and brought off every man on board.

The result was a prize offered for a practical lifeboat. This was won by William Wouldhave, a poor man and a painter by trade. His boat was not very different from Lukin's.

Many boats of this kind were built and put to use, but they had some fatal defects. They were so heavy and unwieldy that it was impossible to transport them far to the location of a wreck, or to launch them from a flat beach in a storm. So they lost the confidence of sailors and fell into disrepute.



Photo by H. Armstrong Roberts

A MOTOR-DRIVEN COAST GUARD CUTTER  
UNDER WAY

## KNIGHTS OF THE WAVE

And it took another spectacular disaster to bring matters to a head. This was in 1849. Again a money prize was offered for a better lifeboat, and this time the competition awakened world-wide interest and effort. The boat selected by an expert jury was designed by James Beeching of Great Yarmouth, and is, to all intents, the self-righting boat of to-day. Our American self-righters are modeled on this type, and even our surfboats have its general build.

It proved an immediate success, righting itself in five seconds when forcibly capsized and freeing itself of water in twelve seconds more. The self-righting was accomplished by water ballast, of which this boat carried over two tons in a tank under her flooring. As for self-bailing, the water drained out through twelve tubes fitted with valves.

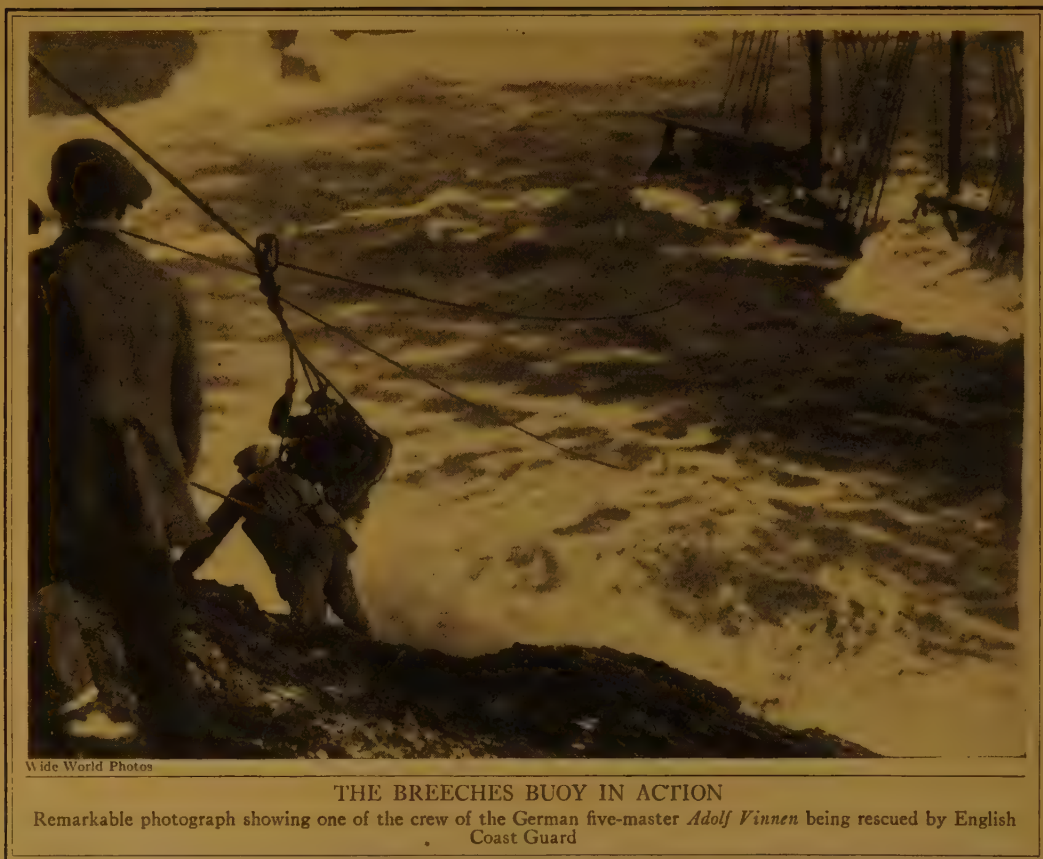
In America, the self-righter didn't make a hit. It was too heavy to be launched in surf without the aid of many strong hands beside the crew. It might be all right for the European coasts, where the distances are short and the population dense, but it wouldn't do for Uncle Sam. He had ten thousand miles of open shores, and he needed light boats that the crews could handle alone.

So two distinct types of lifeboats have been developed: the self-righter and the surfboat. The latter, some twenty-six feet long, has all the best



Photo from U. S. Coast Guard, Wash., D. C.

A RESCUE PARTY BRINGING IN SURVIVORS



Wide World Photos

#### THE BREECHES BUOY IN ACTION

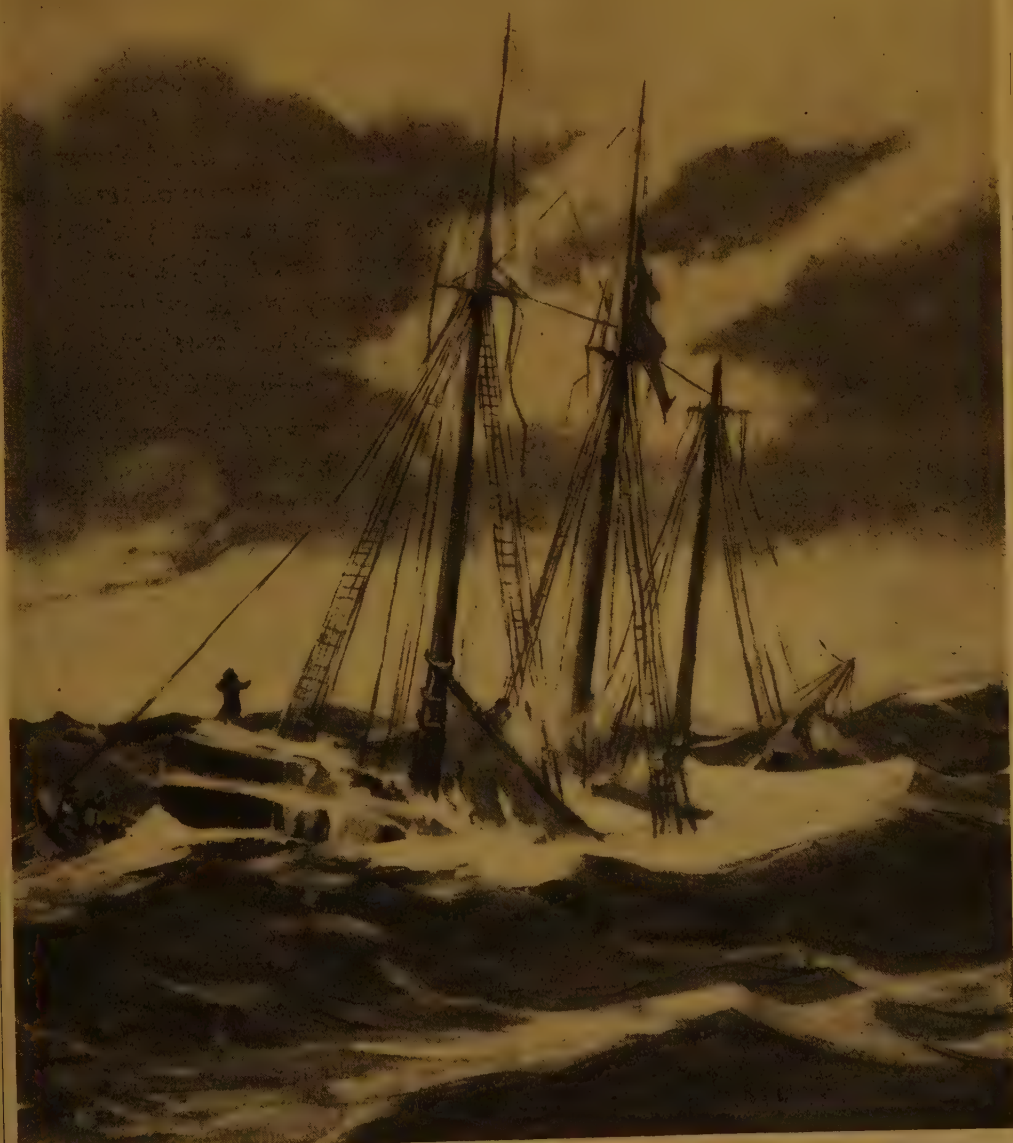
Remarkable photograph showing one of the crew of the German five-master *Adolf Vinnen* being rescued by English Coast Guard

features of the self-righter except the water ballast and the keel. It is insubmersible and light enough to be righted if it should capsize. American crews are trained in this maneuver and can right their boats in twenty seconds.

All lifeboats have mast and sails which can be raised when conditions permit. Steam and gasoline are, of course, factors in the lifeboat, but they have some disadvantages. The propeller, when thrown out of water, races and mars the fine maneuvering so necessary when close to a wreck. When men are jumping from a dying ship into a kicking, plunging boat the slightest variation in that boat's position may mean a salt-water grave. This obstacle was partly overcome by placing the propellers farther forward and in a turtle-backed tunnel to protect them from the floating wreckage.

The United States Coast Guard has now more than three hundred motor-driven lifeboats, mostly thirty-six-foot boats with fifty-horse-power motors. In 1912 they carried almost seventy-three per cent of the voyagers rescued by the service.

The launching of a surfboat in a heavy sea is a very stirring sight. The carriage is backed out into the breakers with two men aboard—the coxswain and the bowman. As the carriage is tipped, the oarsmen run the boat off, swinging themselves aboard as the first wave raises the craft on its back. Then



From a painting by J. D. Whiting

TAKING MEN FROM SINKING SCHOONER OFF MAINE COAST

a mad fight to get clear of the breakers, every wave threatening to turn the boat and roll it back onto the seething white beach.

## THE WRECK GUN

The gun with which a line is shot across the wreck from shore, to carry a tackle and breeches buoy, has been a great boon to humanity. And yet it is available in only a small fraction of the cases where the lifeboat can be used. The first wreck gun was invented, in 1796, by La Fere, and another Frenchman, Gelacy, invented the cork life belt even earlier. But the French sometimes invent, and then lose interest. Many great inventions of French genius have been perfected by the Anglo-Saxons and applied everywhere sooner than in France, and so it was with life-saving equipment.

The Manby wreck gun, first used in England in 1808, could throw a line two hundred and fifty yards. It has been constantly improved until now a range of seven hundred yards is effective. The gun used by the United States Coast Guard was designed by an army officer, Lyle, in 1878.

Each lifeboat carries, by the way, a miniature wreck gun—a “heavy cane” to be thrown by hand. It is weighted at one end and carries a line to the wreck when thrown from the open lifeboat. A line-throwing gun for lifeboats



Photo by H. Armstrong Roberts

### THE WRECK GUN

Crew finding range and firing life line to vessel



#### THE WARNING SIGNAL

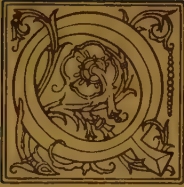
Capt. Abbot H. Walker of the Coast Guard Station at Nauset, Mass., warning a vessel by the use of a night flare

was recently adopted by the British Service. It has a range of eighty yards.

Another important item is the drogue, a device for steadying a leaping boat and keeping her head to the waves. It is a stout canvas bag, kept open by a hoop, and, when towed, makes a powerful brake. You can see how useful such a thing would be when taking men from a wreck in surf. It is often unsafe to approach the lee side of a wreck because masts, spars, etc., are likely to fall or, having fallen, made dangerous débris. To windward the peril of being crushed or capsized makes the use of the drogue a great help.



One has only to glance at the records of the surfmen to realize that truth is often stranger and more thrilling than fiction. The men of the Coast Guard lead lives of big adventure—in which every day has its story.



## WEER THINGS THAT A \* \* \* COAST GUARD HAS TO DO \* \*

He is a General Emergency Man for the Relief  
of All Kinds of Trouble Along the Shore

Quite outside the fact that the men of the United States Coast Guard Service are patrolmen of the sea and lake coasts—standing ready by night and day to perform heroic rescues—they have many varied and picturesque duties and responsibilities thrust upon them by emergency.

Here are some of the curious services of a humane sort that the coast lifesavers have rendered in the course of a season's work—as recorded in the Annual Report of the United States Coast Guard:



Courtesy U. S. Coast Guard, Wash., D. C.

PATROLLING THE BEACH

Held overnight \$180 in gold for a man at Tarpon Beach who was afraid he might be robbed.

Delivered mail to Desdemona Light Station.

Prevented total destruction by fire of a starch factory building.

Transported fishpound inspector on his rounds.

Rescued deer that had broken through ice and, after giving it restorative treatment, let it go.

Removed fishhook from fisherman's face, and dressed wound.

Prepared body of neighbor for burial, built coffin, dug grave and assisted at funeral.

Took care of sick man, relieving night nurse.

Fixed electric light wire short-circuited near dwelling and likely to set it on fire.

Discovered third rail of electric railway short-circuited and section of rail destroyed; flagged approaching train.

Cut rope halter and saved horse down in stall and about to choke to death.

Ran car of sick automobilist, taking him home.

Carried a doctor out to vessel suspected of having smallpox on board.

Stopped runaway horses.

Recovered cow in Ohio River, in danger of going over falls.

Furnished transportation to man called home by sickness in family.

Removed store of vegetables from neighbor's cellar to prevent damage, due to tides and rains.

Found man on beach who had been assaulted and robbed; dressed his injuries and gave him restoratives and food.

Extinguished brush fires that endangered service telephone line.

Boy pinned beneath 1,800-pound stone while playing; raised stone, removed boy; administered stimulants and turned him over to doctor.

Found old man suffering with cancer in shack on beach; summoned doctor and took patient to cottage through heavy snowdrifts, where he could be cared for until storm subsided.



# THROUGH CALM AND STORM

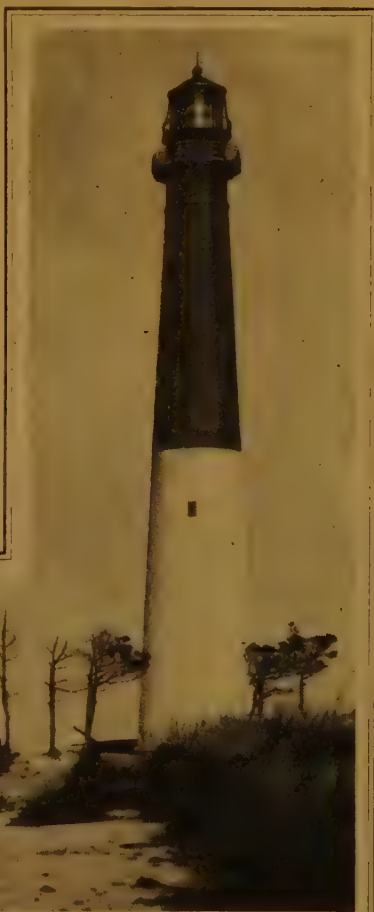
*Lighthouses and  
Coast Signals*

BY RONNÉ C. SHELSE

The story of the lighthouse goes back more than two thousand years but it is only within the last century that lighthouses have been developed on scientific principles. The early towers of Europe had grates in which billets of wood or coal were burned—giving off an uncertain light, which varied with the ever-changing char-

acter of the air. The range of such lights was naturally short. Contrast with that primitive service the marvelous beacons of to-day that throw millions of candlepower across the sea—rays of light carrying sixty miles and more over the deep.

The situation and conditions of lighthouses vary greatly. Off the southwestern chop of Boston Bay is the famous tower of stone known as the Minot's Ledge Light. Built on one of several sunken rocks which were notorious for the wrecks they had caused, Minot's is an engineering triumph. The big tube was five years building. All the forces of nature seemed to combine against the project. High winds and



BARNEGAT LIGHTHOUSE, NEW JERSEY COAST



violent seas prevailed, and at one time during the operation the workmen had to be lashed to a scaffold to prevent their being washed into the ocean.

Spectacle Reef and Stannard Rock Lights, two of the Great Lakes guardians built on reefs many miles from shore and standing in eleven feet of water, were made to resist the ice packs during the winter. The ice grinds upon the shoal, but the spray freezes and completely envelops the towers in ice.

Picturesque are several beacons on the Pacific coast. For example, the Tillamook Rock Light, Oregon, which stands on the vantage ground of a high precipitous rock south of the mouth of the Columbia River and about a mile in from shore. The light shines 136 feet above the water, but even that is not high enough to keep it from the aggressions of the sea. During great storms, titanic waves have been known to rise against the sides, and, in extreme cases, to break panes of glass, putting out the light and flooding the watchroom.

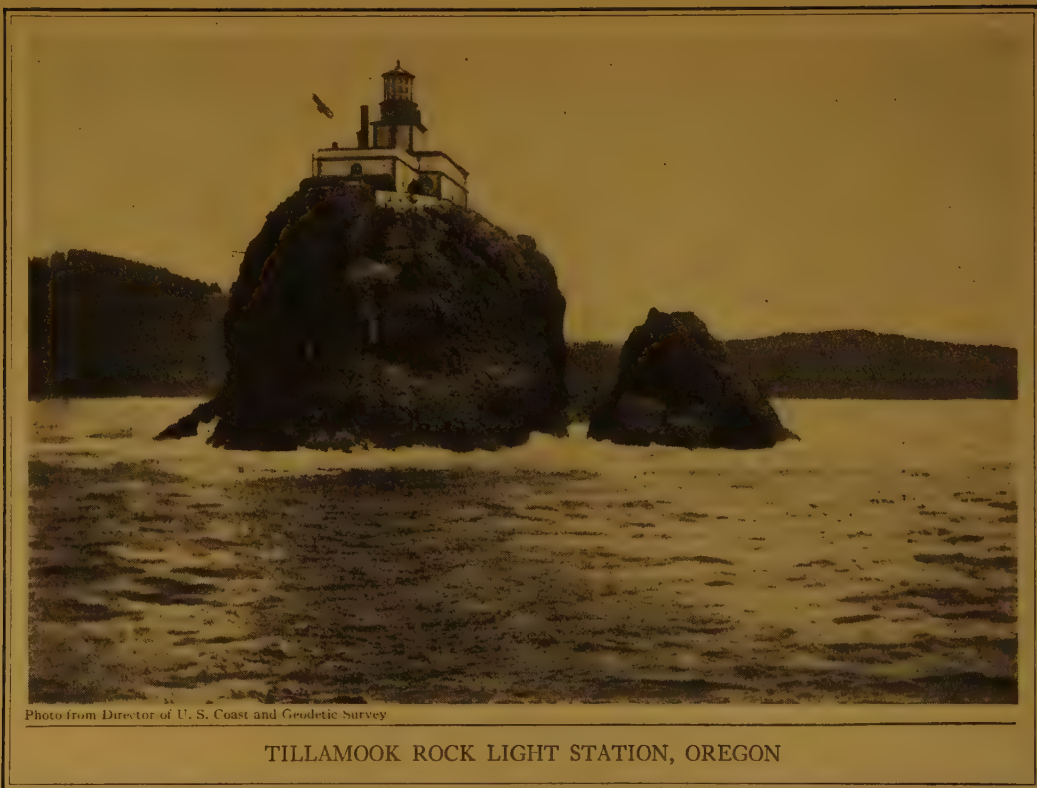
On a rock six miles off the northern coast of California is the St. George Reef Light, the construction of which was a persistent battle with the tides. No one could live on the rock while the work progressed; a schooner stood close by and took the men back and forth by means of a traveler on a crane. Nearly three quarters of a million dollars was spent on this lighthouse, the



Photo by Edwin Levick, N. Y.

### THE LIGHTHOUSE KEEPER IN THE TOWER

Shows the tower of the Richmond Light, Staten Island, N. Y., with the huge lens of high magnification on the right. The view from the window gives a wide sweep of landscape—quite unusual in the case of a lighthouse. This is due to the fact that this lighthouse, although giving a guide light at sea, stands some distance inland on Staten Island. A full view of the lighthouse will be found in the gravure section of this number



TILLAMOOK ROCK LIGHT STATION, OREGON

most expensive structure of its kind in the country—up to the present time.

The Navesink, N. J., Light, on the highlands at the entrance to New York Bay, is the brightest in the service, and was once rated among the most brilliant in the world. At first it was a great electric arc with a power equal to twenty-five million candles, and story has it that vessels seventy miles away had caught its mighty beam. The expense of maintaining such a powerful beacon was finally determined to be unnecessary, so the electric light was dismantled and in its place was installed an incandescent oil-vapor lamp of 710,000 candlepower. Forty-two other lights have candlepowers which range all the way from 620,000 down to 100,000. From the Maine coast to the Florida reefs, along the Great Lakes and rivers, and from Washington State to California they rise up from the water or from some conspicuous point on the shore to send forth their warning.

Before the introduction of modern apparatus practically all of the lanterns were fixed; that is to say, they gave forth a continuous steady light. To-day, in order to avoid the likelihood of confusion, they are also made to flash at regular intervals, to show a fixed light varied regularly by a single flash of greater brilliancy, or to display a steady light that, after a short interval, is totally eclipsed. Further diversification is obtained by the use of screens, which change the color from white to red in various combinations of steady lights and flashes. These are called "alternating lights."



Photo from Director of U. S. Coast and Geodetic Survey

#### LOS ANGELES HARBOR LIGHT STATION, CALIFORNIA

This structure is the principal guide for Los Angeles Harbor and is located on a monolithic concrete block forty feet square, at the outer end of San Pedro Breakwater, two miles from the mainland, in about fifty feet of water. The light-house has a structural steel framework, with the first two stories covered with steel plates and the upper stories with cement plaster walls on reinforcing metal. The illuminating apparatus consists of a fourth-order bivalve lens, showing a white flash of 69,000 candlepower every fifteen seconds. The fog signal is a six-inch automatic siren blown by compressed air



LIGHTHOUSE IN SAN FRANCISCO BAY

It is the navigator's business to know the combinations. In daylight he looks for distinguishing features of form or outline. Many towers, like Barnegat and the one on Cape Hatteras, are painted in spirals, bands or blocks.

Lights and other aids to navigation are maintained along nearly 50,000 miles of coast line and river channels. There are more than 16,000 of these safeguards, embracing all orders from the great "blazer" on some headland tower to the faint gleam of the small post light, and from the shrill siren to the tocsin of the hand bell. A source of wonderment everywhere is the unattended light—the light that shines for months at a time without a keeper. Typical of these is the light on Richardson's Rock, sea-swept and treacherous, west of the Santa Barbara Islands, California. When gas is provided and adjustment made, this mechanical marvel will flash its warning every three seconds for a period of seven months. The unattended lights are also equipped with a valve which automatically cuts off the light at break of dawn, performing this duty with dependable regularity. So sensitive is its mechanism that a heavy cloud passing before the sun is sometimes sufficient to put the light in operation. Lighted buoys, which operate on the same principle, are a comparatively recent invention, and seafaring men say that they are among the most valuable of latter-day developments in coast

## THROUGH CALM AND STORM

lighting. Many of them burn continuously throughout the whole year.

The bell and whistling buoys are almost uncanny in their mechanical efficiency, which is dependent on the motion of the waves. They sway like a pendulum or rise and fall in the water, causing a bell to ring or a whistle to blow. Once in a while a giant buoy breaks loose from its moorings and goes "whistling" down the main. There is the adventure of the " $\frac{LV}{N}$ ," the big fellow that marks the station of Nantucket Shoal Light Vessel. In January, 1915, it snapped its chain and bolted for the open. It was sighted at various places off the Atlantic Coast as far south as the Diamond Shoal Light Vessel, North Carolina, and a steamer picked it up and towed it along for a day. Then the towline parted, and the gadabout was off again. The buoy drifted about in strange waters for over a year and a half and traveled 3,300 miles before it was captured 300 miles north of Bermuda.

The latest and best of the noise-making aids is the screeching siren with compressed air as the sounding medium. This can be started on a moment's notice and is distinct and easily recognized. In addition to these services, which give warning of danger in the sea's obscuring mist, there are electric bells and gongs on the ends of jetties, breakwaters and other inacces-



© Keystone View Co.

### HOW WOLF ROCK LIGHTKEEPER IS RELIEVED

This lighthouse, located on the coast of England, is considered the most dangerous in the world as far as the relief of lightkeepers is concerned. To get on or off the "light" means the use of a bowline and the slightest slip may prove fatal



Photo by Johnson Bros.

#### RADIO COMPASS STATION, SEA GIRT, N. J.

This is one of the most effective of recently perfected additions to the lighthouse service. Radio signals are transmitted by this type station and are received aboard ship on a rotatable coil antenna. The captain determines from the position of the coil the direction of the transmitting station and figures his course accordingly.

sible places, which are operated by distant control, "sirenos" and diaphones—instruments that are provided with a governing device for timing the strikes or blasts. This consists usually of a clockwork whereby the cycle is repeated every minute in order to identify the signal.

The most effective of all fog-signaling devices is the recently perfected radio compass and direction finder, simple in operation and accurate in results. The Sea Girt, N. J., radio compass station is pictured above.

There are, of course, many places on the coasts where a lighthouse is not practical and light vessels are stationed. The most famous of these floating lighthouses is the one anchored off Nantucket, forty miles from the mainland of Massachusetts. All vessels from Europe make the Nantucket Light on the way to New York Harbor.

Last on the list in this interesting and valuable work is the sturdy little tender that carries supplies and equipment to the light vessels and isolated stations, that places buoys near dangerous shoals and rocks, and carries the boss of the district on his regular tour of inspection. These boats must take and keep the sea in all manner of weather, oftentimes in violent storms. Over fifty of these craft are in Uncle Sam's coast service.

# PICTURESQUE LIGHTHOUSES

## FAMOUS NIGHT SENTINELS OF THE SEA



Photograph by H. Armstrong Roberts

### GUARDIAN OF THE SHIFTING SHOALS OF BARNEGAT

This photograph, taken from behind sand dunes, shows the upper portion of the famous old lighthouse in Barnegat Inlet, off the New Jersey coast. Its light is 163 feet above sea level. The invading sea has already eaten deeply into the shore and the light is seriously threatened by every storm. An organized effort has been made to secure an official appropriation for its preservation as a landmark.



P. & A.

# A NIGHT VIEW OF THE FIRE ISLAND LIGHTHOUSE, LONG ISLAND, N. Y.

A familiar guidepost to mariners heading for New York Harbor



© Edwin Levick, N. Y.

# THE GLOUCESTER LIGHT

Sending its warning ray across the rocky shoals of the Massachusetts coast



Photograph by Johnson Bros.

### SANDY HOOK LIGHT, NEW JERSEY

This historic light~~house~~ was built by the British in 1764 on what was then the point of the Hook. Every night, in fair weather or foul, this faithful sentinel sends its beam far over the waters, guiding the passing ships safely into the harbor



Keystone View Co.

#### WOLF ROCK LIGHTHOUSE, ENGLAND

Built upon exposed rock, this light lies midway between the Scilly Isles and Lizard Point, and is submerged to the depth of about six feet at high water. The relieving of lightkeepers is a difficult task in fair or stormy weather



#### THE FAMOUS MINOT'S LEDGE LIGHTHOUSE

Built of granite upon a reef off Boston Harbor, Massachusetts, this light stands eighty-nine feet in height. Five years were spent in the construction, at a cost of over \$300,000



Photo Edwin Levick, N. Y.

RICHMOND LIGHTHOUSE, STATEN ISLAND, N. Y.

From an inland height this beacon serves as a guide for navigators entering Ambrose Channel, New York Harbor



Courtesy U. S. Lighthouse Service

### YAKIMA HEAD LIGHT STATION

One of the most important stations in the Pacific coast lighthouse service



© U. & U.

### LIGHTHOUSE ON THE PANAMA CANAL

Entrance to the Canal Zone from the Pacific Ocean



© U. & U.

### THE ONLY MONUMENT LIGHTHOUSE IN THE WORLD

The memorial tower at Crown Point, Lake Champlain, bears the inscription: "To the Memory of Samuel Champlain, Intrepid Navigator, Scholarly Explorer, Christian Pioneer. Erected by the State of New York and the State of Vermont in commemoration of the discovery of the lake which bears his name"



### ST. AUGUSTINE LIGHT, FLORIDA

In order that lighthouses—whose locations are fixed and indicated on all charts used in determining a ship's position—may be useful during the day as well as at night, each is made distinctive from the others. In this particular case, the spiral black and white bands make this shaft easily distinguishable from the other numerous lights that dot the Florida keys

# THE ARTISTRY OF CLOUDS

BY GAYLE PICKWELL



## CLOUD CHILDREN OF THE NORTHWEST WIND

The most beautiful of all the clouds, the *fracto-cumuli*

**T**HERE is nothing more enticing to an artist than a sky, a sky blue as azure beyond, a gale from Boreas, shrubs bent over before a wind, shadows marching across the landscape of spring, and clouds, white-fringed, dark-centered, scurrying splotches there just above the budding trees.



Photo by O. P. Anderson

#### LENTICULAR CLOUD OVER MOUNT RAINIER (TACOMA)

A cloud of this kind remains stationary, while the wind flows through it. Lenticular clouds often show iridescent colors at their borders

## THE ARTISTRY OF CLOUDS

**C**LOUDS make the beauty of the sunset and the sunrise. They put interest and attractiveness into the sky—the omnipresent background of our world. If they frequently “look like rain,” just as frequently they look like flowering snowballs flung across the canopy above. If clouds sometimes “dampen the spirits,” just as frequently they elevate them by scurrying across the vivid blue before the northwest wind.

There are four fundamental types of clouds. To these the names *cirrus*, *cumulus*, *stratus* and *nimbus*—the “lock of hair,” the “mound,” or “pile,” the “layer” and the “storm” cloud—have been given.

*Cirrus* is the delicate, high-flying, white cloud, usually of ice crystals, that may truly be hair-like, the “painter’s brush,” or “mare’s tail,” but just as frequently will look like the woof and warp of a great sky fabric woven so by the crossing shuttle of the wind looms aloft. Or it may be thrown into curls or wisps, or into waves like kinky negro wool, and again may outdo this by displaying itself in a beautiful “marcel.”

*Cumulus* is the lumpy cloud, the white-fringed mound, that piles up into a mountain to form the thunderhead or, remaining meek, drifts idly, a summer snowdrift, across nearly every bright June sky. The cumuli

scurry almost surely before every true northwest wind. They form into “sheep herd” in the morning sequence of clouds; they herald the early stages of the storm and just as surely follow it.

*Stratus* makes the “gray days.” It is the blanket cloud that blankets the spirit, that overcasts the sky, that may give promise of sun one moment or “lower” the next. *Stratus* is the most prevalent and, because of sameness, the most uninteresting of all. Yet when *stratus* rains, it then is *nimbus*; and *nimbus*, raining, is prophet of a whole gamut of cloud beauty that will follow its breaking.

These four cloud types have four intermediate varieties and several other forms which depend upon altitude and wind. For instance, *cirrus* in a thin high layer is *cirro-stratus*. In transition from *cirrus* to *cumulus* the cloud assumes, occasionally, a scaled appearance called *cirro-cumulus*. *Cumuli* whose flat bottoms nearly fill the sky so that the cloud, except for rifts here and there, looks like a layer is called *strato-cumulus* and the towering *cumulus* of the thunderhead is *cumulo-nimbus* as soon as rain falls from its darkened bottom.

Similarly a very high cloud layer is *alto-stratus*. High, close-heaped mounds of white

cumulus is alto-cumulus. The wind, in dis-heveling and rupturing the clouds, makes fracto-stratus, fracto-cumulus and fracto-nimbus.

Within certain limits these types and varieties can be said to occur only at specific altitudes. Thus cirrus, usually of ice crystals, rides the sky at an altitude averaging five miles. It may ascend to seven or eight in summer or descend to two in winter. Cumulus varies from heights of only a quarter of a mile for the base of the cloud to heights of as much as three miles for the peak, and occasionally the cumulo-nimbus may, in itself, be two or three miles tall from base to summit. Stratus may be less than five hundred feet above the earth and rarely, in its ordinary phases, ascends above a mile. Indeed, fog (a cloud in contact with the ground) becomes stratus as soon as it rises above the earth.

Clouds show considerable seasonal variation. In fact, one may say that much of the impression given by any season comes largely from its clouds. What, for instance, is more suggestive of summer than those exploded cotton bales, the cumuli, drifting

across the azure sky of June. The typical cumulo-nimbus, the thunderhead, is a product of calm, sultry days alone. The ragged children of the northwest wind, the fracto-cumuli, come almost weekly in April and May and the gray days of November owe their grayness to the stratus blanket close-wrapped overhead. March gets its wildness from "scud;" while the wind-fractured nimbus and strato-cumuli line up in row on row in the sky of January.

There is a storm sequence of cloud that, in winter, may require days to run its course, but ofttimes in June may be seen entire in the expanse of one full sky. High aloft flies the cirrus, sometimes in cirro-stratus but often in beautiful wisps, har-binger of other clouds to follow. Cirrus thickens to flakes and tiny mounds and cirro-cumuli then form the "mackerel sky." Cirro-cumuli thicken further to mounds of close-set clouds called the "sheep herd" or alto-cumulus, and alto-cumulus then becomes smoothed out into darkened stratus. Stratus becomes nimbus and the storm is on.

By a most fortunate paradox many of the cloud types, and certainly the most beautiful



Photo by Wm. B. Baxter

#### ONE OF NATURE'S PICTURESQUE CLOUD DISPLAYS

When the wind changes and ruptures the rain cloud into *fracto-nimbus* and "scud," then the afternoon sun breaks through to send its last rays in broad pathways of light



Photo by F. Ellerman

### CIRRUS CLOUDS—BETTER KNOWN AS MARES' TAILS

These clouds consist of tiny icy crystals. They are always fibrous or feathery, and assume a great variety of forms. Many distinct types have been classified by cloud specialists

of them, occur in "fair" weather. Following a storm there is a sequence of clouds which, in the freshened air, acquire a lure not offered by those that preceded the rain.

Changing wind ruptures the rain cloud, and frequently, most assuredly in spring, the fracto-nimbus will scatter across the sky to make the "scud." Scud will sprinkle a few last raindrops on faces upturned to blue patches of sky, and if the sun comes shining through, the beams of light will be seen to "draw" water, as the saying goes. And the sun will form, on the retreating rain, a rainbow in promise of fair weather.

The following day will be clear and cool in the morning, but as the sun advances cirrus wisps will form here and there across the sky. Mid-morning will bring a freshening of the northwest wind and the cirrus will give way to patches of lower cumuli which, caught by the wind, scurry off with ragged edges to a haven in the southeast horizon. As they scamper along aloft these children of the northwest wind impart to us some of their hilarity and brightness.

The fracto-cumuli become very dense

toward noon and against the sun they appear dark, with dazzling white edges; away from it they form in rows, all white, like cadets in open skirmish. The shadows they cast upon the ground are phantom children in a rapid game of hare and hounds. By mid-afternoon the wind will lessen and with it go the children, leaving fewer, slower shadows on the fields. By sundown all will have found the southeast haven, and the sky is again clear and spotless as the morning.

Artists have never fully realized the artistry in clouds. To many of them the sky was a bit of background to be left bare or to be daubed indifferently for effect and not for truth. Yet clouds require, for truth, a care as exacting as any other feature of a landscape. Many skies on canvas have a cloud effect that may mean anything or nothing, having no cloud definiteness. Of these Ruskin, in his "Modern Painters," says: "He who tells nothing cannot tell a falsehood," meaning that artists have saved themselves, in their cloud ignorance, by a group of conventional figments—yet they have missed a world of beauty.



Photo by F. Ellerman

### THE IMPOSING CUMULO-NIMBUS

This thundercloud has grown up from a mass of *cumulus*, and rain is falling from the middle of it. It has probably not yet attained its full size



Photo from Observatory of the Ebro

# CIRRO-CUMULUS, OR "MACKEREL SKY"

"Mackerel scales and mares' tails make lofty ships carry low sails"



## BLOSSOMS AND CLOUDS

Cherry blossoms here are in silhouette against a "fair weather" sky nearly filled with *fracto-cumulus* clouds



Photo by Lewis McMurdie

### THE SHEEP HERD

In the morning transition and sequence of clouds, the culmination is usually the *alto-cumulus*, which fills the sky for a few moments with evanescent, fleecy mounds



Photo by F. Ellerman

### CASTLES IN THE AIR

These little clouds with turret-like projections are called *altopumulus-castellatus*



Photo from C. Stewart

### A CLOUD THAT "GOES OVER THE TOP"

Table Mountain, South Africa, spread with the "Tablecloth," the most famous cloud in the world. This sheet of cloud forms when moist winds from the ocean blow over the peak



Photo by F. Ellerman

### A SEA OF FOG VIEWED FROM ABOVE

Seen from the summit of Mount Wilson, California. An American counterpart of the *Nebelmeer* which travelers admire from Alpine summits. A fog is merely a cloud at the earth's surface



Photo by O. H. Lawrence

### CUMULUS FORMING OVER A FOREST FIRE

The rising currents of moist air over a big fire often lead to the formation of clouds not merely of smoke but of water masses of true *cumulus*. Sometimes rain falls from these clouds and puts out the fire that produced them

# "HE PAINTED THE MIGHT OF THE SEA"

## WINSLOW HOMER, MAN AND ARTIST

BY WILLIAM STARKWEATHER

ON THE Maine coast, twelve miles south of Portland, Prout's Neck, a bold headland, thrusts its black rocks into the foaming green and white of the Atlantic. Here, at forty-eight, the great Winslow Homer virtually retired from the world. Here, until his death twenty-six years later, he lived alone in a studio above the sea. In this solitary place swept by the spray and wraith-like mists of the ocean his art reached that full fruition for which the years until middle life had been but a long preparation. With the murmurous and thunderous voices of the deep in his ears he painted a series of marine pictures that achieved international fame and established his position as one of the most original and accomplished of native American painters.

Winslow Homer was born in Boston in 1836 of New England stock. At nineteen, apprenticed to a Boston lithographer, he designed music covers and other commercial pieces, a work he detested. Homer's characteristic independence and self-reliance are indicated by a remark made at this time: "If a man wants to be an artist he must never look at pictures." By 1859 Homer was working in New York as a free-lance illustrator for wood engraving. For years he used a tower room of the old University Building on Washington Square as a studio. A door opened from his workshop on the flat roof of the building, where the painter often posed his models when depicting an outdoor effect.

During the Civil War Homer visited the front as artist for "Harper's Weekly" and

upon returning to New York succeeded with oil paintings of incidents of camp life. After a brief trip to Paris, which had no apparent effect upon his work, he painted a number of carefully executed but dry and highly illustrative pictures of native American life.

These pictures marked progress but lacked the grandeur of style and spirit that distinguished the artist's later productions. A

two seasons' stay (1881-1882) at Tynemouth, England, where he worked exclusively in water color, greatly improved his art. His composition became simpler and larger in mass; influenced by his water-color technique, the oils painted subsequent to the Tynemouth trip gained in ease of handling; his hot and muddy color cleared into the silvery and atmospheric tones that thereafter marked his work.

Detestation of jury duty in New York was one of the reasons that caused Homer to move to Prout's Neck, where he built a studio cottage. There he produced picture after picture of the

sea and of the life of the sea. The vigor and original beauty of these works won international celebrity. The earlier of these canvases often contained figures as in the celebrated "Life Line" and in "Undertow," pictures of sea rescues which had both been started at New York. The models for "Undertow" posed on the roof of the University Building, pails of water being thrown on them at intervals to obtain the clinging effect of wet bathing garments. As the artist grew older he painted more marines without figures or with figures of minor



WINSLOW HOMER



#### WINSLOW HOMER IN HIS STUDIO

From a photograph taken when he was painting his picture "The Gulf Stream"

importance. He made frequent winter trips to the West Indies, where he produced splendid water colors.

Homer was an eccentric man and his life was eccentric. During his first years at Prout's Neck he had the company of his father, but after his father's death in 1898 the artist lived alone. He generally remained from early March until December at Prout's Neck. Occasionally indeed he stayed all winter beside the northern sea. In mid-summer he had some companionship from his brothers and nephews who summered near by. But his life was deliberately solitary. He did his own cooking and cooked well, although when absorbed in work he frequently forgot to eat at fixed periods. A man helper went to the studio each morning to assist with the rougher housework. Homer had the curious habit of buying things in very large quantities; he would buy underclothing, for example, by the gross, one hundred and forty-four pairs of socks at a time. If he found anything in a store that suited him he was apt to buy all of it in stock.

He was a reticent and somewhat morose man; the sharply accented individualism of his character grew more pronounced as he aged. He did not want to be bothered by anyone; he wished to be left alone, to be allowed to keep his life simple. Troubled by autograph collectors he had a rubber stamp made which he often used for his signature. He took no particular interest in the work of

other artists, only rarely visiting New York or Boston. He did not care to teach. "I don't like art students," he said. Compliments he received with coldness, flattery with scorn. He had a horror of bores. He retired to Prout's Neck to work undisturbed and generally denied himself to visitors; on occasions he could be a charming host to the few who succeeded in passing his gates. For use in severe weather he had constructed a portable painting house about eight by ten feet with a plate-glass window in one side. This house he would have placed advantageously on the rocks, then shut within it he could work from nature undisturbed by wind, spray or inquisitive passers-by. He was passionately fond of flowers, which he grew in a small garden beside his cottage. This garden he surrounded by a high board fence to prevent his being observed by the constantly increasing number of summer visitors.

A story showing Homer's individualism is related by William H. Downes in his excellent life of the painter. A New York man traveled all the way to Maine to make Homer's acquaintance. Upon arriving he found the studio locked, the artist absent. Finally he came upon a rough-looking individual wearing an old suit, a battered hat and carrying a fishing pole. The traveler offered the fisherman a quarter if he would tell him where to find Winslow Homer. "Where's your quarter?" asked the fisherman. The visitor, handing it over, was

stupefied to hear his new acquaintance say: "I am Winslow Homer." As a sequel Homer took the visitor to his studio, entertained him and sold him a picture. But under all the thorny and bitter exterior of Homer's character there was considerable gentleness and kindness. He was a helpful friend to many of the plain people with whom he associated at Prout's Neck. To know Homer's real character one should look at his work; large, robust, poetic, it is the best reflection of the essentials of the man behind it. He died at Prout's Neck of heart disease in 1910.

Winslow Homer's great reputation rests on his water colors and on the marine pieces in oil which he painted after his middle years. Had he died before forty he would have been regarded as an artist of more promise and originality than of accomplishment. His early pictures, hot and brown in color, tight in drawing, highly anecdotal, deficient in beauty, are more to be valued for their native American quality than for any especial artistic merit. Homer's greatest asset as a craftsman was his mastery of design; the composition of his later oils is superb. He had a remarkable sense of the effective relationship of spaces and lines. He kept his compositions to a simple mosaic of large masses that gave his pictures great carrying power. His draftmanship was not impeccable; it was always characterized by the tightness and smallness that marks the

work of the self-taught. His color improved steadily throughout his life, although he was not a great colorist. His painting became steadily larger and more fluent; but it must be admitted that as an oil technician his work fell far below the technical beauties of such a master as Manet. His handling of water colors was superb; in this medium he is one of the greatest masters that has lived; many estimate Homer more highly as a water-colorist than as an oil painter. Objection is made to much of Homer's work by some critics, on the ground that it is often, even in later pieces, highly anecdotal and story-telling. To this another camp of critics reply that to reduce art as Whistler generally did to an exquisite and decorative statement of the visual appearance of things makes it dull; that most of the great pictures of the world are story-telling; that there is not, for example, anywhere to be found a more illustrative painting than Leonardo da Vinci's "Last Supper." Certainly Homer, even in the more anecdotal of his later works, attempts no complicated narrative. It is always a simple incident that he shows, demanding no comment for its comprehension. It needs indeed no especial art knowledge to understand the pictures of Homer. These superb achievements of American art carry their message of grandeur, of beauty and of poetic feeling to the heart of every observer.



In the Metropolitan Museum of Art, N. Y.

NORTHEASTER, By Winslow Homer



THE WRECK, By Winslow Homer

In the Carnegie Institute, Pittsburgh, Pa



Original painting formerly in the collection of Mr. George W. Elkins, and now in possession of the city of Philadelphia

THE LIFE LINE, By Winslow Homer



THE UNDERTOW, By Winslow Homer



In the Boston Museum of Fine Arts

THE LOOKOUT—"ALL'S WELL," By Winslow Homer



## LIGHTHOUSE TENDED BY WOMEN

The Biloxi Light, Seventy-seven Years of Age,  
Still Gleams Along the Old Spanish Trail

Biloxi beacon, on the Gulf Coast of Mississippi, has a vivid history. The lighthouse was erected in 1848 by an Eastern firm for the United States Government. Biloxi was at that time 149 years old, having been founded by the French in 1699. The Gulf side of the Biloxi peninsula was the center of activity, which was principally fishing. The summer months brought many visitors to the Gulf beach.

As the lighthouse grew in years of service, Biloxi also grew. Along in 1860, when Biloxi was getting to be a "good-sized" town, a storm lashed the Gulf coast. The high waters weakened the foundation, and when the tides had receded, the lighthouse was left tilting with a log high and dry between the raised end and the foundation. The light remained in this position for several years before it was straightened and made fast to its base.

Then came the Civil War. Both Confederates and Federals played a historic part about Biloxi, especially on Ship Island, just thirteen miles directly off from the lighthouse—but that is another story. However, the lighthouse has in its history one incident directly connected with the Civil War period. When President Lincoln was assassinated, and the entire nation mourned, honor was accorded the distinguished executive by painting the lighthouse black.

To-day the lighthouse still stands and lights the beach, but its surroundings have changed.

The modern world with its conditions, together with the growth of Biloxi, has given the lighthouse a strong competitor for the honor and privilege of guiding vessels into Biloxi harbor at night. It is the electric light. The street cars turning on the beach, with their lights, the regular street lights and those of the large beach homes make such

an array of brilliancy that it is hard to find the towerlight when approaching the city on a boat to-day.

The fishermen, however, still look to the lighthouse, for its lights can be depended on. The electric lights may suddenly go out for one cause or another but the old high-power light in the tower glows right on.

Years of service have had little effect on the Biloxi lighthouse. It is kept in such excellent condition that one would hardly believe that it is "going on 78." Vessels have worn themselves out in service and come into port on their last trip, while other boats have gone out

never to return—the victims of storm—but the Biloxi lighthouse shines steadily on.

In 1867 Mrs. Miranda Younghans was appointed keeper of the Biloxi lighthouse station, and she still holds that post to-day, assisted by relatives—who are women, however. When one takes a journey to the top, the cleanliness of the place cannot go unnoticed. Upon learning that the light is in the hands of women some are heard to say, "I thought a woman had something to do with it."

Anthony V. Ragusin.



THE BILOXI LIGHTHOUSE



# MAPPING THE BOTTOM OF THE SEA

## How the Ocean Depths are Sounded and Surveyed

BY C. F. TALMAN

Seven tenths of the earth's surface is completely hidden from the eye of man. Most of this vast invisible area, amounting to an estimated total of 139,686,000 square miles, is unexplored. Several of its mountains and valleys, plateaus and plains, ridges and chasms have been named, but their names are unfamiliar to the majority of people.

For example, there is the Telegraph Plateau. This name is three quarters of a century old, and the region to which it belongs is half as big as Europe.

Then there is the Crozet Rise, the Japan Trench, the Cape Trough, the Marianne Ridge, the Brazil Basin, the Congo Canyon and the Tuscarora Deep. Every year hundreds of thousands of people sail along two or three miles above lands they have never heard of!

There are two exceptions to this statement. First there is a fringe of waters along the

coasts of continents and islands where shoals, reefs and channels are of vital concern to the mariner. These features have, in most parts of the world, been mapped in great detail, and many of them bear names (such as "Ambrose Channel," "Diamond Shoal," etc.) that are quite well known. Second, there are certain so-called "banks," or broad shallow areas of the high seas, that have become famous as fishing grounds. These regions, too, have generally been well mapped.

The rest of the ocean floor is known, even to science, only in its barest outlines. The soundings needed to reveal its ups and downs have been few and far between.

Charts of ocean depths (known as "bathymetric charts"), though they necessarily include a good deal of guesswork, have been drawn for all the oceans. The earliest one, representing the bottom features of the Atlantic, was published in 1854 by the famous

American oceanographer Matthew Fontaine Maury. It was he who named the Telegraph Plateau, which stretches across nearly the whole width of the Atlantic between Ireland and Newfoundland, and furnishes a comparatively level bed for most of the Atlantic cables. The latest general bathymetric chart of the oceans is the large-scale chart published, in many separate sheets, under the auspices of the late Prince of Monaco. Thousands of charts showing the depths of coastal waters have been published by the governments of maritime countries.

Methods of obtaining the soundings upon which submarine charts are based vary according to circumstances. In shallow waters near shore a simple lead and line are used, the lead being cast by hand. The work is mostly done from a launch or row-



Photo Pictogram Co., Wash., D. C.

### MAKING A CHART

A launch from the surveying ship *Hannibal* sounding the depth of water in a harbor. The steamer's position is fixed by observers with sextants

boat, but sometimes from a large vessel. The soundings are made while the vessel is in motion and the position of each is determined by means of sextant observations of fixed objects on shore, including, in some cases, signals specially erected for the purpose. As the depth of the water varies with the stage of the tide, all soundings are reduced to "mean low tide" before being entered on the charts. In recent years the lead-line has been supplemented by a device known as the "wire drag," for locating isolated rocks. Photographs taken from aeroplanes are now employed to some extent for determining the general outlines of shoals and channels. From a height of several thousand feet the water is, in suitable weather, so transparent that submerged features can be photographed down to thirty or forty feet below the surface.

Two methods of deep-sea sounding are in use. In the method that was universal until two or three years ago a "sounding machine" is employed. The line used with the sounding machine consists of steel piano wire, less than one twenty-fifth inch in diameter, several miles of which are coiled on a revolving drum. A heavy sinker carries the line down and is automatically detached on reaching the bottom. The length of wire run out is shown by a dial, and this represents the depth. The ship must be stopped to make a sounding, and the process is slow, the sinker taking fully half an hour to reach bottom at 3,000 fathoms, and much longer in proportion for greater depths on account of the increased friction of the longer wire.

The newer method, which may be called



Photo Pictogram Co.

#### SOUNDING THE DEPTHS OF THE SEA BY ECHO

This wonderful device, recently developed by the U. S. Navy, involves the process of sending out a sound signal which is reflected by the sea bottom back to the instrument. Sound travels through sea water at an average speed of 4,800 feet a second, hence the depth can be calculated from the time required for the signal to reach the bottom and return to the ship. The operator listens to the outgoing sound with one ear and for the echo with the other. The measurements can be made so accurate that errors do not exceed five feet in a mile of water.

"sounding by echo," is pictured and described on this page. As this device does its work in a small fraction of the time required by the ordinary sounding machine, and as it can be used while the ship is running at full speed, it is certain to revolutionize deep-sea sounding within the next few years.

What is the greatest depth in the ocean? The latest answer to this question, supplied in the year 1924 by a Japanese surveying steamer sounding off the southeast coast of Japan, was 32,644 feet. But such "records" are transient, and with the increasing use of the marvelous new acoustic method of sounding we are likely to hear of many deeper holes in the bottom of the sea.



This design, showing a contour of part of the Pacific Ocean bottom, is printed here by courtesy Commercial Cable Co.



# THE CHRISTENING OF AMERICA

It Was Not the Italian Amerigo Vespucci but an Ardent Young Poet Who Gave Our Western Continent Its Name

BY CAXTON FRAZIER

Emerson deplored the fact that "proud America must bear the name of a thief, Amerigo Vespucci, the pickle dealer of Seville." It now appears that Emerson was misinformed—that Vespucci had nothing at all to do with choosing the name of the western continents. He never used the word in any of his writings, and was known to be a modest man who cared nothing for the spotlight.

A poet named America. A poet young, ardent; a student at Heidelberg and Paris; a linguist and an eager follower of geography in an age when the ports of Europe were often in gala dress for the ships of world discoverers. Mathias Ringmann was a native of a village in the Vosges Mountains. He was born just ten years before Columbus turned his prow from Palos. Mathias and a friend, Martinus Waldseemüller, after graduating from college joined a literary society that used to meet in the old town of St. Dié, near Luneville and not many miles from Strasburg. In the spring of 1507, this group of men set up a print shop in St. Dié, as a practical step toward the dissemination

of knowledge. The first thing they decided to undertake was the printing of a map of the world and a treatise in Latin to accompany it. Ringmann enthusiastically entered into the work of translating and editing material for the explanatory booklet, called "*Introductio Cosmographiae*," or Introduction to the Science of the General Constitution of the Universe. No one can positively say who wrote the treatise, but usually when Waldseemüller drew a map it was the part of Ringmann to prepare the pamphlet that went with it.

Before work began on the St. Dié world wall map, the poet had made a translation of Amerigo Vespucci's report of his voyages and had indited a sonnet on the mysteries of the new-found world and the feats of Columbus, Cabral and Vespucci. From the first he was enchanted by the meter and melody of the name "Amerigo," which, translated into Latin, became Americus.

Waldseemüller's plates were about ready for printing when his young friend discovered that space had been reserved for the recently discovered lands, but no name appeared inside the fictitious boundary lines traced by the map maker. Fired by his admiration for Vespucci and his tuneful Christian name, "Let us call it America," he urged. "Let us print the name America there." He reminded Waldseemüller, in support of his plea, that all the other known continents bore female appellations; it seemed just that now the opposite sex should be honored. Tolerantly the map maker agreed. Probably he thought it a harmless notion at worst and had in mind no more fitting designation for that vague expanse which up to that time had been called merely the "New World." Waldseemüller let his youthful collaborator have his way, but indicated his opinion of the idea by

## COSMOGRPHIAE

Capadociam/Pamphiliam/Lidiam/Ciliciã/Armenias maiorẽ & minorẽ.Colchiden/Hircaniam/Hiberiam/Albaniamet preterea multas quas singulatim enume-are longa mora esset.Ita dicta ab eius nominis regina.

Nũc vo & he partes sunt latius lustratæ/& alia quarta pars per Americũ Vesputiũ(ve in sequenti bus audietur)inuenta est/quã nõn video cur quis iure vetet ab Americo inuatore sagacis ingenij vi  
Americo Amerigen quasi Americi terrã / siue Americam dicendãicũ & Europa & Asia a mulieribus sua sortita sint nomina.Eius sitũ & genis mores ex his binis Americi nauigationibus quæ sequuntẽliquide intelligidatur.

### FACSIMILE OF THE "INTRODUCTIO COSMOGRAPHIAE"

It was in this old treatise that the poet Mathias Ringmann first called the countries of the Western Hemisphere "America." This was in the year 1507

printing the untried combination in letters very small, instead of large, as on the old continents.

The map and the globe that appeared in 1507 were the first to advertise the new name. The "Introduction to Cosmography," printed the same year in the St. Dié shop, contained in the sixth chapter the priceless passage:

*NOW SINCE THESE PARTS (EUROPE, ASIA AND AFRICA) HAVE BEEN MORE EXTENSIVELY EXPLORED AND ANOTHER FOURTH PART (SOUTH AND NORTH AMERICA) HAS BEEN DISCOVERED BY AMERICUS VESPUTIUS, I DO NOT SEE WHO CAN RIGHTLY VETO WHY IT SHOULD NOT BE NAMED AFTER THE DISCOVERER AMERICUS, AMERIGE, SO TO SAY, AMERICUS LAND, OR AMERICA.*



HOUSE IN ST. DIÉ, FRANCE, WHERE THE NAME "AMERICA" WAS PRINTED FOR THE FIRST TIME

In the center of the picture is the building in which the actual printing of the "Introductio Cosmographiae" was done. To-day it is occupied by a pharmacy. A commemorative tablet was placed on it sometime ago with appropriate ceremonies

The first edition of this significant old St. Dié map, one thousand copies, sold quickly to universities and men of learning. No one can estimate its influence on the spread of geographical knowledge and on later maps. Following the death of Ringmann—after the way of poets, he died very young—Waldseemüller no longer put the name on the maps he designed, but people everywhere had taken to it readily and adopted it. Map experts gradually conceded to popular use and engraved it on their plates. Governments followed suit, first those of Germany and France, then the rest of Europe. Spain was the last to sanction it, liking *Novo Mondo* (New World) better.

Undoubtedly Ringmann, a student of words, was acquainted with the Gothic title, *Amalaric*, used by reigning sovereigns. Explorers in Central America had brought news of a tribe of *Amerriques* Indians. Vespucci reported hearing the word "*Amarica*" on his travels. But the author of the "Introduction to Cosmography" leaves no question as to the inspiration of the name coined within its pages. This version definitely corrects the slanderous impression that Vespucci attempted to rob Columbus and Cabral of their honors, by calling the Western Hemisphere after himself.

A print of fabulous value drawn from the 1507 plate, and bearing original corrections,

came to light about twenty-five years ago in the library of an ancient castle in Würtemberg, Germany. A scholar, permitted the freedom of the library by the owner, Prince Waldburg Wolfegg, unearthed a beechwood-bound volume containing several sixteenth-century proof sheets, among them a map drawn by the German artist, Albrecht Dürer. The wall world map, eight by four feet in size, was printed from twelve woodcuts and fitted together in three sections of four plates each.

So far as known the only existing specimen of a first edition sheet bearing the imprint "America" is the one at Castle Wolfegg. A few years ago the present owner offered to send the map for exhibition in the United States, but the government was unwilling to accept the responsibility for the transportation of the historic treasure.

St. Dié, secluded on the banks of the Meurthe among the mountains of the French province of Lorraine, calls itself "the god-mother of the American continents." A short while before the war the American ambassador and other dignitaries laid the cornerstone of a monolith known as "America's Tower," and in the summer of 1924 a group of travelers from the United States placed a tablet on the house where printers first set the type that spelled the magic word *America*.



Courtesy Los Angeles Shipbuilding & Dry Dock & Repair Co. and Morse Dry Dock Repair Co.

#### A WEST COAST STEAMER COVERED WITH BARNACLES

Barnacles are found in all seas and they stick to a ship's side in such numbers as to "slow them up." An ocean-going ship must occasionally go into dry dock and have its hull scraped



## ARNACLES—THE BANE OF OCEAN- GOING SHIPS ❖ ❖

BY PEARL V. DARTT

The lifework of a barnacle is very simple. After an active and changeful babyhood barnacles fix themselves solidly, head-on, to some object and there they stick—devoting themselves solely to the business of obtaining food and propagating their kind.

When the baby barnacle emerges from the egg it has a three-cornered shell, one small eye, three pairs of legs and a mouth and digestive apparatus. After swimming around a while it develops six pairs of legs and two large eyes, easily seen through the valves of the shell. Also, it has a pair of antennules projecting from its head, each equipped at its tip with a sucker-like disk by which it attaches itself to some object, and then goes into lifelong retirement.

As it grows it loses its two conspicuous eyes—and only a few thin-shelled species retain the single eye. This is sensitive to light, but there is nothing of what we know

as vision. Every year the barnacle adds thickness and a new ridge to its shell.

The twelve legs of the baby barnacle develop into tendril-like appendages, having two branches fringed with long, curling hairs. These are its feet—and they project from between the shells of the creature and wave to and fro in the water, sweeping in such food matter, animal or vegetable, as may drift near. Another use of these feathery legs seems to be the aerating of the blood, the barnacle having no breathing organs.

Its apparatus for manufacturing the cement that fastens it to a rock or a piece of wood consists of glands located near the head, with ducts through which the cement escapes.

The so-called "ship barnacle" has a stalk or peduncle through which the cement issues and fastens it to the hull of a vessel. Barnacles are found in all seas, and they stick to ships in such numbers as to "slow them up," so an ocean-going ship must occasionally go into dry dock and have its hull scraped. As barnacles cannot live in fresh water, seaports with fresh-water harbors furnish a place where ships, after lying a few days, lose a good bit of their burden, and thus reduce the work of renovation.

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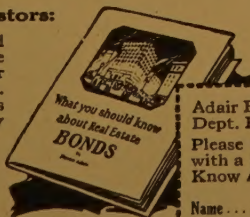
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# AN AMERICAN CITIZEN INTELLIGENCE TEST



How Many of the Following Simple Questions  
About Your Country Can You Answer Offhand?

1. How many were the original states of the Union, and what states were they? What was the last state admitted into the present 48 states?
2. Who were the authors of the Declaration of Independence?
3. If the President and the Vice President should die, what would be the order of succession to the office of Chief Executive?
4. On what basis is the number of senators and representatives in Congress determined?
5. What was the Benedict Arnold treason plot?
6. Where is Valley Forge? Lundy's Lane? Harper's Ferry? Bull Run?
7. Who were David Crockett and James Bowie, and with what tragic event in American history were they connected?
8. When and where was the gold found that started the rush to California?
9. Who were the first Americans to cross the continent to the Pacific?
10. Who discovered the Pacific; and who the Mississippi River?
11. What are the colonial possessions of the United States? How are they represented and how governed?
12. How many judges are there in the U. S. Supreme Court?
13. Who made the American flag, and where was it made?
14. Who was it said, "Give me liberty or give me death!"?
15. How many times did Columbus visit the Western Hemisphere?
16. Who were the heroes of Lake Erie and Ticonderoga, and what historic words did they utter?
17. Who was John Brown, and what part did he play in history?
18. Who were the first four Presidents of the United States?
19. What will be the number of the next Congress?
20. On what occasion and when was Lincoln's Gettysburg Speech delivered?
21. How many Vice Presidents have succeeded to office through the death of the President, and who were they?
22. What are the three constitutional branches of the U. S. Government, and what are the bodies that function in them?
23. How many Cabinet members are there, and what are their departments?
24. What is the Smithsonian Institution?
25. What was the meaning of the historic phrase, "Fifty-four forty or fight"?
26. When Washington became President what other nations were in possession of territory now included within the bounds of the United States?
27. What is the electoral college?
28. What is the provision of the Monroe Doctrine, and on what notable occasions has the United States invoked it?
29. What are the conditions of acquiring citizenship in the United States?
30. When is a woman of age to vote?
31. How old must a man be to assume office as representative, senator and President?
32. What vote of Congress is necessary to override the President's veto?
33. By what measures and state vote is an amendment to the Constitution effected?



UNCLE SAM—"HIS MARK"

Soon after the Declaration of Independence was signed a committee was appointed by Congress to select a design for a seal. Jefferson, Franklin, Adams and others had suggestions, and many designs were rejected. It was on June 20, 1782, that the United States seal was adopted



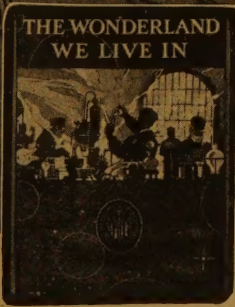
## Is your mind still traveling behind a danger flag?

In 1896 the automobile was bound to become a tremendous factor in modern life. Scientists knew it; engineers knew it; a few business men knew it and became millionaires. Still it was generally looked upon as a nuisance, a menace to life and limb. There was a law in England that every car must be preceded by a red flag!

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PUBLISHED MONTHLY BY THE CROWELL PUBLISHING COMPANY AT SPRINGFIELD, OHIO, U. S. A.

# THE MENTOR

W. D. MOFFAT

EDITOR

RUTH WOOD THOMPSON, *Assistant Editor*

THE ADDRESS OF EXECUTIVE AND EDITORIAL OFFICES, 250 PARK AVENUE, NEW YORK CITY.

THE SUBSCRIPTION PRICE, \$4.00 A YEAR

THE PRICE OF SINGLE COPIES, 35 CENTS

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## THE OPEN LETTER



IS THE world growing better or worse? The Great War raised that question in the minds of millions, and our boasted civilization seems haunted yet by the shadow of the cave man.

But there are rifts in the cloud. We have ample grounds for believing that the world is much better than it was. The story of rescue at sea is one line of convincing evidence.

Two centuries ago—only yesterday, when we consider the age of man—there was no such thing as organized rescue at sea. If the luckless voyager escaped the swarms of pirates that murdered their way across the seven seas, and was wrecked on some lee shore, he had little to hope for. Even if he were near enough land to see men crowding the cliffs he had no tangible chance of getting aid from the shore.

Worse than this, in old times, the dwellers along the European coasts fattened themselves on the spoils of wrecks driven on their shores. Watching hungrily for a ship to strike, they would usually murder anyone who had the misfortune to reach land. Sometimes the voyager would even be lured to death upon the reefs by false signals lighted by wreckers. This kind of wrecking was a very common practice, which flourished—much as does bootlegging now—because many people thought it rather clever.

So the old-time sailor could expect no quarter. If he escaped the fury of the sea it was only to find that man was crueler than the waves—a ravenous, devouring wolf.

Pilots too were often bribed by feudal barons to wreck the ships entrusted to their care on the shores owned by the gentlemen in question, who would thus be enriched by a handsome cargo of red wines from Marseilles or silver bars from Brazil.

These pleasant customs flourished as late as the time of George II of England (1727-1760), in spite of stringent laws against them. George II tried to fight cruelty with cruelty, and used death by torture to punish offenders. But wrecking only died when public opinion was enough aroused to assist governments in stamping out the evil. Very slowly this came to pass.

To-day, as Mr. Whiting has made clear, the coasts of all civilized nations are girdled by stations established for the purpose of rescue work at sea. There is no rock or shoal where a ship can strike unknown to the faithful men who guard these brave little outposts of mercy.

The story of the Coast Guard Life-Saving Service is the best answer to the pessimist's wailing protest against "man's inhumanity to man." It tells us plainly that the world has grown much more humane in the past century and a half.

*W. D. Moffat*  
• Editor